



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,723	05/25/2004	Hendra Sudin	22171-00016-US1	3722
30678	7590	06/22/2005	EXAMINER	
CONNOLLY BOVE LODGE & HUTZ LLP			CHAN, EMILY Y	
SUITE 800			ART UNIT	
1990 M STREET NW			PAPER NUMBER	
WASHINGTON, DC 20036-3425			2829	

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental Office Action Summary

Application No.

10/709,723

Applicant(s)

SUDIN, HENDRA

Examiner

Emily Y. Chan

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6,8-12,15,17,19,21-25,28,30,32 and 34-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,12,25,38,41 and 44 is/are allowed.
- 6) ☒ Claim(s) 4,6,8-11,15,17,19,21-24,28,30,32,34-37,39,40 and 42-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

supplemental office action

This is in response to the applicants' letter submitted on 5-19-05 and this is the supplemental office action to substitute the office action dated on 4-19-05 to correct the typo for missing claim 34 rejected on 35 USC 103 of the office action.

Claim Objections

1. Claims 2, 40-41, 43-44 and 46 are objected to because of the following informalities: In claims 2, 40-41, 43-44 and 46, it is not pointed out where the two supporters are positioned. Are they disposed in the insulative body or inside the at least one opening of the insulative body? In claim 9, the recitation that the supporter, which comprises a plurality of beams recited in claim 4, comprises helical spring is unclear because the specifications and drawings never mention and show that the supporter comprises both the plurality of beams and the helical spring. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 6, 8-9, 10-11 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zaerpoor US Patent Publication No. 2004/0124861 in view of Chee US Patent No. 6,084,420.

With respect to claims 4 and 9, Zaerpoor ('861) expressly discloses a probe device (see Figs 1-4) for electrically testing an integrated circuit device as claimed, comprising:

- an insulative body (elastic diaphragm 130) including at least one opening;
- at least one supporter (conductive groove 112 and holding ring 122) positioned inside the at least one opening of the insulative body (130);
- a probe (120) positioned substantially at a center of the supporter (conductive groove 112 and holding ring 122), wherein the probe is configured to electrically connected to a pad (98) of the integrated circuit device during testing (see Fig. 1); and a conductive wire (110) positioned in the insulative body (130) and electrically connected to the supporter (conductive groove 112 and holding ring 122) (see page 2, paragraph {0026}).

Zaerpoor ('861) does not disclose that his supporter (conductive groove 112 and holding ring 122) comprises a plurality of beams positioned in a radial manner.

Chee ('420) discloses a probe assembly (see Figs 1 and 3) for testing an integrated circuit device and particularly teach at least one support (32,34, 36) comprising a plurality of beams (32) in a radial manner.

It would have been obvious to one of ordinary skilled in the art at the time the claimed invention was made to incorporate Chee ('420)'s plurality of beams positioned in radial manner in Zaerpoor ('861) 's supporter so that Zaerpoor ('861) 's holding ring (122) operates for connecting the plurality of beams as claimed because Chee ('420) pointes out that his probe assemblies allow probe tips to move independently to

Art Unit: 2829

compensate for wafer movement or variations in test pads position (see Col. 2, lines 5-7 and Abstract).

With respect to claims 6 and 39, Chee ('420) disclose that his support (32, 34,36) comprises three beams (32) and the included angles between two adjacent beams are substantially 120 degrees.

With respect to claims 8 and 10, Chee ('420) disclose three beams (32) in the supporters, therefore, it would have been obvious to one of ordinary skill in the art to have changed the three beams to four or six beams as claimed because The probe support structure having four or six beams would have been obvious variations of Chee ('420)'s three beams (see MPEP 2144.04.IV CHANGE IN SIZE, SHAPE).

With respect to claim 11, Chee ('420) discloses that each of his probe (30) and supporter (32,34,36) comprises tungsten and copper or other material) (see Col. 3, lines 56-65).

With respect to claim 40, Chee ('420) disclose three supporters (34), therefore, it would have been obvious to one of ordinary skill in the art to have changed the three supporters to two supporters positioned substantially in parallel with each other as claimed because The probe support structure having two supporters would have been obvious variations of Chee ('420)'s three supporters (see MPEP 2144.04.IV CHANGE IN SIZE, SHAPE).

3. Claims 15,17, 19, 21-24, 28, 30, 32, 34-37,42-43 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al US Patent No. 6,781, 392 in view of Zaerpoor ('861) and Chee ('420).

With respect to claims 15 and 28, Cheng et al ('392) expressly disclose a modularized probe card (see Fig. 1) as claimed, comprising: a circuit board (60) having at least one test-connecting site; a probe head (20) having a plurality of probe devices (23), and an interface board (10) having at least one first signal-connecting site positioned on the upper surface of the interface board (10) for electrically connecting the test-connecting site of the circuit board (60) and at least one second signal-connecting site positioned on the bottom surface of the interface board (10) for electrically connecting the conductive wire of the probe head (20).

Cheng et al ('392) do not disclose that each of their probe device (23) comprises (1) an insulative body, (2) at least one supporter which comprises a plurality of beams positioned in a radial manner and (3) a conductive wire.

As to (1) and (3) above, Zaerpoor ('861) discloses a probe device (100) and particularly teaches an insulative body (elastic diaphragm 130) including at least one opening; at least one supporter (conductive groove 112 and holding ring 122) positioned inside the at least one opening of the insulative body (130); a probe (120) positioned substantially at a center of the supporter (conductive groove 112 and holding ring 122), wherein the probe is configured to electrically connected to a pad (98) of the integrated circuit device during testing (see Fig. 1); and a conductive wire (110) positioned in the insulative body (130) and electrically connected to the supporter (conductive groove 112 and holding ring 122) (see page 2, paragraph {0026}).

As to (2) above, Chee ('420) discloses a probe assembly (see Figs 1 and 3) for testing an integrated circuit device and particularly teach at least one support (32,34, 36) comprising a plurality of beams (32) in a radial manner.

Therefore, It would have been obvious to one of ordinary skilled in the art at the time the claimed invention was made to incorporate the teaching of the insulative body and plurality of beams as taught by Zaerpoor ('861) and Chee ('420) respectively into Cheng et al ('392) 's probe card device for the purpose of providing a simple, inexpensive and reliable apparatus to test electronic chip as disclosed by Zaerpoor ('861) (see page 1, paragraph 4) and for the expected benefit to compensate for variations in the position of test pads or contacts due to the changes of probing pressure as disclosed by Chee ('420) (see Col. 3, lines 15-17 and Abstract, last three lines).

With respect to claims 17, 30, 42 and 45, Chee ('420) disclose that his supporter (32, 34,36) comprises three beams (32) and included angles between two adjacent beams are substantially 120 degrees.

With respect to claims 19, 21, 32 and 34, Chee ('420) disclose three beams (32) in the supporter, therefore, it would have been obvious to one of ordinary skill in the art to have changed the three beams to four or six beams as claimed because the probe support structure having four or six beams would have been obvious variations of Chee ('420)'s three beams (see MPEP 2144.04.IV CHANGE IN SIZE, SHAPE).

With respect to claims 22-23 and 35-36, Cheng et al ('392) disclose that a pad is electrically connected to an associated conductive wire and an associated second signal-connecting site of the interface board (see Fig. 1).

With respect to claims 24 and 37, Chee ('420) discloses that each of his probe (30) and supporter (32,34,36) comprises tungsten and copper or other material) (see Col. 3, lines 56-65).

With respect to claims 43 and 46, Chee ('420) disclose three supporters (34), therefore, it would have been obvious to one of ordinary skill in the art to have changed the three supporters to two supporters positioned substantially in parallel with each other as claimed because The probe support structure having two supporters would have been obvious variations of Chee ('420)'s three supporters (see MPEP 2144.04.IV CHANGE IN SIZE, SHAPE).

Allowable Subject Matter

4. Claims 1,12, 25 and 38 are allowed over the prior art.

Claims 2,41 and 44 are objected to as being rejected on claim language (see above) but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-2, 12, 25, 38, 41 and 44 are allowed because the prior art of record does not teach or suggest a probe device for electrically testing an integrated circuit comprising all the elements in combination recited in independent claims 1, 12 and 25.

Specifically, the prior art does not teach at least one supporter positioned inside the at least one opening of the insulative body and the supporter comprises a helical spring with a spiral coil extending substantially in a same plane as shown in Fig. 1. Claims 2, 38, 41 and 44 are dependent on claims 1, 12 and 25 respectively and are allowed accordingly.

Response to Arguments

5. Applicant's arguments with respect to claims 1-2, 4, 6, 8-12, 15,17, 19, 21-25, 28, 30, 32 and 34-37 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y. Chan whose telephone number is 571-272-1956. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC
6-15-05


VINH NGUYEN
PRIMARY EXAMINER
A.U. 2829
06/20/05